

FDA's Watchful Eye on the American Diet

Four times a year, FDA employees posted from coast to coast perform a task normally carried out by homemakers.

They leave their offices and head for supermarkets and fast food restaurants in 12 cities in the Western, North Central, Southern, and Northeastern regions of the United States. Using carefully compiled shopping lists, they buy 280 food products that make up the typical diet of most Americans. They ship the voluminous market baskets to an FDA laboratory in a suburb of Kansas City, Kan., which is the focal point of FDA's internationally renowned program called the "Total Diet Study (TDS)."

The lab assembles the products and sends them to a nearby church. There, they are cleaned, peeled, mashed, cooked, baked, fried, and sauted the way they are likely to be prepared in millions of American homes. Then, the ready-to-eat foods are sent to three FDA laboratories where they are analyzed for contaminants, pesticide residues, and selected nutrients.

Four Decades of Monitoring Meals

FDA's TDS is an outgrowth of post-World War II concerns about the potential effects on the American food supply of toxic chemicals produced by radioactive fallout.

Early Testing: When FDA launched the project in 1961, it tested foods typically eaten by 16-19 year-old boys whose big appetites would expose them most heavily to possible contaminants. The first study included 82 foods, and the tests were focused on two



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Since 1961, FDA's "Total Diet Study" has protected consumers from a wide range of food hazards, from PCBs in cereal boxes to pesticides in salmon.

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by-products of radiation—strontium 90 and cesium 137—and the residues of a few pesticides. The program was quickly recognized for its high value in protecting public health.

An Evolving Program: Since then, the program has been not only dramatically expanded, but also repeatedly updated to keep in step with new health hazards and America’s changing food choices. For example, between 1990 and 2003, the study stopped analyzing such foods as scalloped potatoes, stewed tomatoes, and cream-style corn that are less popular today than in the early 1990s.

At the same time, the list of analyzed foods was enlarged to include more low-fat products and fast foods, including low-fat cottage cheese, water-packed tuna, and such carry-outs as Chinese fried rice and burritos. Baby foods are an important part of the TDS as well, and particular attention is paid to keeping up with the ever-changing array of baby foods on store shelves.

Advanced Techniques: By now, the program covers 285 foods that are analyzed for more than 200 components including pesticide residues, toxic elements such as lead, volatile organic compounds, radionuclides and industrial chemicals, and nutrient elements. The tests have been upgraded to detect residues at levels

5-20 times lower than conventional analytical techniques.

Impressive Results

The growing sophistication of the TDS is reflected in the more than 14,000 analytical findings—about 5,000 of which are toxic elements and chemical contaminants—FDA’s food scientists make each year. Potentially serious food hazards are traced to their origin. Here are some examples of FDA’s investigations.

Cereals and Dairy Products: In 1971, the study detected PCBs—organic compounds used in industrial cooling fluids—in breakfast cereals. The agency traced the contaminant to PCB-contaminated recycled paper in which the product was packaged. Several years later, the Study found high levels of iodine in dairy products. FDA investigation found that the chemical came from iodine-containing materials used to clean the equipment in dairy and other food processing plants.

Baby Food and Peanut Butter: Still more detective work was required to find the reasons for elevated levels of lead in certain baby foods and of arsenic in peanut butter, both of which the study discovered in late 1990s. The baby food contaminant was found in carrots grown in former orchards that had been treated with lead-containing insecticide; the

search for the cause of the peanut butter problem led to a peanut field that, many years before, had been treated with arsenic-containing defoliant.

Salmon: Yet another example of the study’s successful work was the discovery in 2000 of a pesticide in a sample of salmon. The contamination was probably caused by a major spill of the chemical in Oregon’s Columbia River.

In all cases the results of these investigation were passed on to the involved food firms or industry, and promptly led to corrective actions.

Worldwide Use of Data

The TDS’s fruitful record has won a global recognition. The Codex Alimentarius Commission, an arm of the United Nations’ Food and Agriculture Organization and the World Health Organization (WHO), uses the study’s findings in setting international limits for food contaminants. WHO relies on the resulting standards in resolving trade disputes among nations.

But the greatest beneficiaries of FDA’s watchful Total Diet Study are American consumers. As they sit down to their daily meals, they don’t have to worry about hidden contaminants. [FDA](#)